

stigma, it likewise agrees; and the fruit is also a berry, seated on the persistent cupular base of the calyx. In its general habit it quite resembles other species of *Condalia*, its leaves being alternate, and it has no spines. Dr. Philippi describes its flowers as being pentamerous; but in the specimen I examined they were certainly tetramerous, as in the other species of the genus. I do not doubt the accuracy of the former statement; for it is very probable that its flowers may occasionally be abnormally pentamerous. I add below, in a note, my observations upon the above-mentioned plant*.

III.—On certain Musical Curculionidæ; with Descriptions of two new Plinthi. By T. VERNON WOLLASTON, M.A., F.L.S.

WHILST residing in the remote and almost inaccessible village of Taganana (towards Point Anaga), in the north of Teneriffe, during the spring of 1859, my attention was called to a peculiarity in a beautiful species of *Acalles* (I believe the *A. argillosus*, Schönh.), which I do not remember to have seen recorded concerning any other Coleopterous insect whatsoever. It was on the 22nd of May that my Portuguese servant (whom I had sent out to collect) brought me home eleven specimens of a large *Acalles* which he had captured within the dried and hollow stems of a plant growing on the rocky slopes towards the sea, and which I have but little doubt (from his description) was the *Kleinia neriifolia*, DC., so common throughout the islands of the Canarian archipelago. I had been accustomed to find such a number of insects in the dead branches of the various Euphorbias, that my attendant also had discovered, from time to time, the *locus quo* of many a rarity by imitating my method of research; and, to use his own expression, he was about, in this instance, to throw away these rotten stems as worthless, when he was arrested by a loud grating, or almost chirping, noise, as

* *Condalia Maytenoides*;—*Sciadophila Maytenoides*, *Phil. Linn.* xxviii. 618;—*Colletia Maytenoides*, *Griseb. loc. cit.* p. 619;—frutex vix orgyalis, inermis, ramulis gracilibus, striatis, subglabris, valde foliosis; foliis alternis, elliptico-vel lanceolato-oblongis, utrinque acutis, integris, margine cartilagineo, subrevoluto vel interdum obsolete crenulato, glaberrimis, subtus paulo pallidioribus, crassiusculis, nervis superne omnino immersis, subtus vix prominulis, rachi superne sulcato, infra prominente; petiolo brevi, pallido, canaliculato; stipulis parvis, caducissimis; floribus axillaribus, solitariis, vel binis, glaberrimis, calycis tubo urceolato, brevi, limbo 4-fido, æquilongo; staminibus 4, laciniis dimidio brevioribus, erectis, antheris parvis, globosis, apicifixis; ovario glabro; stylo staminibus æquilongo, glabro, crassiusculo, subulato; stigmate 3-dentato. Bacca (sec. Phil.) nigra, basi angustata, insipida.—Chile, in nemoribus Prov. Valdiviæ.—*v. s. in hb. Mus. Paris.* (Philippi).

of many creatures in concert; and on looking closer for the mysterious cause, he detected a specimen of *Acalles*, from which it was quite evident that a portion of the noise proceeded. On shaking the hollow stem, so as to arouse its inmates, and putting his ear alongside it, the whole plant appeared musical, as though enchanted; and it was evident to him, therefore, that there were more of the performers within,—a conjecture which proved to be correct, for, on breaking open the branches, he captured nearly a dozen of them.

No one who has studied the genus *Acalles* in a state of nature, particularly the comparatively gigantic forms of subaustral latitudes, and who has marked their dull, obscurely-variegated surfaces and nodose bodies (often with such difficulty distinguished from the masses of lichen and wood to which they have chanced to adhere), as well as their singular mode of counterfeiting death, when disturbed, by contracting their legs under them, and applying their head and rostrum so closely against their chest as to appear at first sight, even when thrown about, mere shapeless masses, motionless and inanimate,—can be surprised that an uneducated eye should have failed in perceiving at once the tenants of those stems, when first exposed to view: but naturalists who are acquainted with the species of this singular group would rather anticipate such a result as not only probable but almost certain.

So pleased was I with the accomplishments of these anomalous musicians, when brought to me, that I felt quite a reluctance (even though an entomologist) to put them to death. I therefore made a compromise with my feelings, and killed only eight of them. The remaining three I kept alive for several weeks, and even took them to Madeira,—where, however, they unfortunately died (as I imagine, from hunger) just before embarking for England. So long as they lived, however, it was a constant source of amusement to make these creatures stridulate, or “sing,” as it was usually called, which they would invariably do, for almost any length of time, when alarmed,—as, for instance, when held between the finger and thumb, and slightly pinched. In this manner I have had four of them chirping at a time; and so loud was the noise produced that it might be heard at the distance of many yards.

It was some time before I was able to satisfy myself, not only as to the *modus operandi* of this proceeding, but even as to the exact region of the body from whence it emanated; for they would often stridulate when lying on their sides, with their limbs closely retracted and their head applied to their chest, and in fact whilst to all appearance perfectly passive and inanimate. Most Coleopterists are aware of the power possessed by many

Longicorns of emitting a grating noise from their thoracic segments—the great central region of their body; and as I had formerly taken some pains to ascertain the precise nature of their stridulating instrument as represented in the Atlantic genus *Deucalion*, my first supposition was that this Canarian *Acalles* had probably a similar mesothoracic file, over which the constricted and roughened edge of the pronotum was made to slide—an arrangement which I made out satisfactorily (*vide* Ins. Mad. p. 432) in the *D. desertorum*, and which I thought might possibly exist (although I had never hitherto suspected such a fact) in certain members of the *Curculionidæ* also. But on closely examining the creature whilst producing its notes, I could perceive no upward and downward movement of the head and prothorax, such as is necessitated in the case of the Longicorns whilst performing, and which causes the tuberculous inner surface of the latter to sweep over the dorsal file of the mesonotum; nor, indeed, for a long time, could I detect any motion in the body whatsoever. But at length a minute and rapid vibration of the apical segment of the abdomen—so rapid that, to the naked eye, it was scarcely appreciable—became evident, which at once solved the mystery, so far indeed as it could be solved without an actual dissection.

And so the matter rested until now, when (after the lapse of nearly a year) I have again taken it in hand, and have destroyed a specimen of the *Acalles argillosus*, so as to discover the exact nature of the mechanism on which its musical capabilities depend; and I feel bound to add that, although the structure is so evident as to leave no doubt whatsoever on my mind as to the *modus operandi* in generating the sound, it nevertheless seems to me to be an instrument scarcely adequate to occasion notes thus shrill and audible. In the Longicorns this was not so; for there the elongate file (in the form of an isosceles triangle) was extended along the whole length of the mesonotum, and was so comparatively coarse and regular in its parallel ridges, that it was not possible for a roughened surface (like the inner layer of the pronotum) to slide across it without a noise of some kind being produced. But in the case of the *Acalles*, the *pygidium*, although roughened, is not very sensibly so; whilst the small portion of the inner surface of the elytra against which (at each successive pulsation) it is brought to play is far less strictly file-like than was the triangular mesothoracic space of *Deucalion*. And yet this is certainly the contrivance by means of which this little Curculionidous musician is enabled to perform its anal “song.” On carefully inspecting its abdomen, it will be seen that the terminal portion of it (represented by a single visible segment below, and by two when viewed from above) is *free*;

and that, when the insect is alarmed, it is in a state of constant and most rapid vibration. Now, whilst the under surface of this abdominal apex is merely clothed with scales, the upper surface (or pygidium) is destitute of scales, but slightly rough, deeply punctured, and *setose*; and the inner portion of the elytra (*corresponding with the constricted, or suddenly-attenuated, apical region*, as seen from above), against which the pygidium comes in contact at each of the pulsatory movements, is, to the naked eye, merely dull and subopaque (instead of being glossy, like the rest of the inner tegument of the elytra); but when viewed beneath the microscope, this duller portion is coarsely shagreened, or, more strictly, perhaps, minutely and very densely subreticulate: and I conceive that it is by the play of the bristles of the pygidium against this subreticulated portion of the inner surface of the elytra (assisted, perhaps, by the setæ at the apex of the *dorsal* apical segment, which comes in contact with the inner surface of the *ventral* apical segment, which is likewise reticulate) that the music is generated.

In the gigantic *Acalles Neptunus* from the Salvages (an old specimen of which I have just destroyed, in order to ascertain whether it also possesses a similar stridulating instrument), the reticulations of the inner surface of this constricted apical portion of the elytra are much more elongate, appearing, at first sight, almost like the ridges of the mesothoracic file of *Deucalion*; nevertheless, when viewed beneath a high magnifying power, they are perceived (no less than those of the *A. argillosus*) to be true reticulations, or meshes, being more or less irregular in their formation, and made up of obliquely-transverse, as well as longitudinal lines. I should therefore conclude, from the large size of the insect and the comparative coarseness of its subanal apparatus, that it is, in all probability, a species of great musical capabilities.

Whether *all* the *Acalles* have this remarkable power, I will not undertake to pronounce; but so far as the numerous representatives from the Atlantic islands are concerned, I have but little hesitation, from the general appearance of the constricted apical region of their elytra, in believing that they have. And, indeed, this conjecture has been absolutely verified in five of the Madeiran ones by the direct and careful observations of Mr. Bewicke, from whom I have received some very interesting remarks concerning them. On my arrival at Funchal, from Teneriffe, in June 1859, I exhibited my specimens (then in a lively state) of the *A. argillosus* to Mr. Bewicke, and requested him to listen attentively to the Madeiran species, whenever he chanced to meet with them, during the following summer, in order to ascertain whether or not they had a similar stridulating propen-

sity; and I have since been assured by him that he has heard the music constantly in the *A. dispar*, *nodiferus*, *terminalis*, and *ornatus*; and that "it was distinctly audible" in even the minute *A. Wollastoni*, which is the smallest of all the Madeiran *Curculionida* hitherto discovered.

But it is not in *Acalles* only that I have observed this anomalous proceeding. After having become familiar with it in the *A. argillosus*, I detected it likewise, before leaving Teneriffe, in a large and noble *Plinthus*, which seems to be peculiar to the Canaries. In that insect, however, the music was scarcely so loud, in proportion to the size of the creature, as was that of the *Acalles*; nevertheless the stridulating instrument is, perhaps, somewhat better defined. It is entirely the same, in position and general character, as the one which obtains in *Acalles*, except that the subopake portion of the inner tegument of the elytra (corresponding with the constricted apical region as seen from above) is, instead of being *subreticulose*, strictly *file-like*, being made up of a series of minute, closely-set, regular and parallel ridges, similar to those on the mesonotum of the Longicorns. I subjoin the following diagnosis of this magnificent *Plinthus*:—

Plinthus musicus, n. sp.

P. squamis fuscis dense nebulosus et setulis demissis pallidioribus parce irroratus; rostro graciliusculo, ad basin (ante oculos) leviter rotundato-ampliato; prothorace inæquali, carinato, parce punctato (punctis maximis); elytris ante apicem lateraliter constrictis, utroque ad apicem ipsum leviter acuminato (excavationem parvam communem efficiente), squamis albidioribus circa humeros et apicem, necnon aliis maculam parvam rotundatam discalem et fasciam fractam transversam postmediam efficientibus (omnibus plus minus obsoletis), ornatis, profunde striato-punctatis, interstitiis alternis leviter elevatis; femoribus dentatis.

Long. corp. lin. 6–6½.

Habitat editiora sylvatica Teneriffæ, sub lapidibus, passim.

A distinct and beautiful *Plinthus*, which may be well known (when in a fresh and *unrubbed* condition) by the paler scales about the sides of its prothorax, as well as about the humeral region and apex of its elytra,—which last have also a small discal patch and a much broken postmedial fascia. It is closely allied to another and still rarer species, of which I likewise add a diagnosis,—this being perhaps the best place in which to do so, though I did not happen to observe any stridulating power in any of the few specimens which I have hitherto captured of it. In the *P. musicus* I not only observed it frequently, but I even effected the noise artificially by vibrating (though somewhat clumsily) the terminal segment of the abdomen; but I

have not thought it worth while to destroy one of the examples of the *P. velutinus* in order to satisfy myself of a similar subanal contrivance in that species also. There can be no doubt, however, that it would stridulate; though, judging from its less constricted or attenuated elytral apex, I should imagine that its notes would probably be less audible than those of its ally. Both the *P. musicus* and *velutinus* have strongly carinated prothoraces, and their femora have a powerful tooth beneath.

Plinthus velutinus, n. sp.

P. squamis atris densissime tectus, sed vix setulosus; rostro ad basin (ante oculos) sat fortiter rotundato-ampliato; prothorace inæquali, carinato, sed vix punctato; elytris ante apicem minus lateraliter constrictis, apice ipso integro, squamis albidioribus ad humeros ipsos, necnon aliis punctum minutum discalem et maculam vix majorem transversam postmediam efficientibus (omnibus plus minus obsolete), ornatis, leviter striato-punctatis, interstitiis alternis obsolete elevatis; femoribus dentatis.

Long. corp. lin. 6-6½.

Habitat Teneriffam, in iisdem locis ac præcedens, sed illo multo rarior.

Nearly resembling the *P. musicus*; nevertheless its much darker surface and almost total freedom from additional decumbent setæ, as well as its nearly obsolete elytral patches (which, when not obliterated, are reduced to four small punctures, or spots), in conjunction with its slightly shorter and broader rostrum (which is rather more distinctly widened at the base, immediately in front of the eyes), its nearly *unpunctured* prothorax, and the *entire* and less laterally constricted apex of its more feebly sculptured elytra, will readily distinguish it from that species. It is very much rarer than the *P. musicus*, occurring beneath stones in the moist woods of a lofty elevation; and although both species ascend to an altitude of at least 7000 feet above the sea, the *P. velutinus* would seem to inhabit principally the *upper* portion of that range, attaining its maximum, perhaps, at about the height of 6000 feet. Most of the specimens of it, however, which I have as yet secured were captured amongst the Retamas of the Cumbre, above the Agua Mansa; whereas the *P. musicus* is found, not only in that upland tract, but also at the Agua Mansa itself, and likewise in the sylvan districts of the Agua Garcia and towards Point Anaga, in the latter of which it is tolerably common at Las Mercedes (beyond Laguna) and above Taganana—making its appearance at an altitude of about 2000 feet.